

Amendments to the Claims:

This listing is based on the claims after the Article 19 amendment. Claims 3, 6, 9, 11, 13, 15, 17, 19, 20-21, 23-24, 31-32, 35, 37, and 38 are being amended; and claims 39-46 are added.

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Original) A thermal imaging system for quantitative thermal mapping of a scene, the system comprising:
a thermal imaging device;
a first heat source of known temperature and emissivity, located within the scene viewed by the thermal imaging device; and
a processor adapted to generate a calibrated temperature map of the scene from the data supplied by the thermal imaging device, by determining a correction based on the known temperature of the heat source, and applying the correction to data supplied by the thermal imaging device.

2. (Original) A thermal imaging system according to claim 1 which further comprises a second heat source of known temperature and emissivity, located within the scene viewed by the thermal imaging device and wherein the processor is adapted to generate the calibrated temperature map from the data supplied by the thermal imaging device, based on the known temperatures of both the first and the second heat sources.

3. (Currently amended) A thermal imaging system according to claim 1 ~~or claim~~ 2 which further comprises means for measuring the temperature of the or each heat source and communicating the temperature to the processor.

4. (Original) A thermal imaging system according to claim 3 wherein the temperature of the or each heat source is measured by a contact sensor.

1 5. (Original) A thermal imaging system according to claim 3 wherein the
2 temperature of the or each heat source is measured by an infrared thermometer.

3 6. (Currently amended) A thermal imaging system according to ~~any of the~~
4 ~~preceding claims~~ claim 1 wherein the temperature of the or each heat source is adjustable by
5 electronic means.

6 7. (Original) A thermal imaging system according to claim 6 wherein the
7 temperature of the or each heat source is adjustable by resistance heating means.

8 8. (Original) A thermal imaging system according to claim 6 wherein the
9 temperature of the or each heat source is adjustable by a device operating on the Peltier principle.

10 9. (Currently amended) A thermal imaging system according to ~~any of the~~
11 ~~preceding claims~~ claim 1 wherein the control of each heat source is effected by electronic
12 circuitry local to that heat source.

13 10. (Original) A thermal imaging system according to claim 9 wherein a set-
14 point temperature for control of the or each heat source is communicated from the processor to
15 the electronic circuitry local to that heat source.

16 11. (Currently amended) A thermal imaging system according to ~~any of the~~
17 ~~preceding claims~~ claim 1 wherein a temperature range of the thermal imaging device is
18 adjustable by the processor.

19 12. (Original) A thermal imaging system according to claim 11 wherein the
20 temperature range is adjustable by the processor in accordance with the known temperature of
21 the or each heat source.

22 13. (Currently amended) A thermal imaging system according to ~~any of the~~
23 ~~preceding claims~~ claim 1 wherein the thermal imaging device comprises a focal plane array
24 (FPA) detector.

1 14. (Original) A thermal imaging system according to claim 13 wherein the FPA
2 detector is an un-cooled FPA detector.

3 15. (Currently amended) A thermal imaging system according to claim 13 ~~or~~
4 ~~claim 14~~ wherein the FPA comprises thermal detectors.

5 16. (Original) A thermal imaging system according to claim 15 wherein the
6 thermal detectors are bolometers.

7 17. (Currently amended) A thermal imaging system according to ~~any of claims~~
8 ~~13 to 16~~ claim 13 which further comprises means for maintaining the temperature of the FPA
9 detector at close to room temperature.

10 18. (Original) A thermal imaging system according to claim 17 wherein the
11 temperature of the FPA detector is maintained by means of a device operating on the Peltier
12 principle.

13 19. (Currently amended) A thermal imaging system according to ~~any of the~~
14 ~~preceding claims~~ claim 13 wherein the FPA detector is cased in a protective housing.

15 20. (Currently amended) A thermal imaging system according to ~~any of the~~
16 ~~preceding claims~~ claim 1 wherein the or each heat source has a surface finish substantially
17 identical to that of an object of primary interest in the scene.

18 21. (Currently amended) A thermal imaging system according to ~~any of the~~
19 ~~preceding claims~~ claim 1 wherein the or each heat source comprises at least a portion of an
20 object forming part of the scene to be thermally mapped.

21 22. (Original) A thermal imaging system according to claim 21 wherein the
22 temperature of the object is monitored using at least a contact thermometer fitted to the object.

23 23. (Currently amended) A thermal imaging system according to ~~any of claims 1~~
24 ~~to 19~~ claim 1 wherein the or each heat source is a black body source.

1 24. (Currently amended) A thermal imaging system according to ~~any of the~~
2 ~~preceding claims, claim 1~~ wherein the system is adapted to identify temperature variations in at
3 least part of a target object within the scene, the target object being a living subject.

4 25. (Original) A thermal imaging system according to claim 24, wherein the
5 living subject is a human.

6 26. (Original) A thermal imaging system according to claim 25, wherein the part
7 of the target object is a hand, foot or face.

8 27. (Original) A method of generating a quantitative thermal map of a scene, the
9 method comprising:

10 positioning a first heat source of known temperature and emissivity within the
11 scene;

12 imaging the scene using a thermal imaging device; and

13 generating a calibrated temperature map of the scene, by determining a correction
14 based on the known temperature of the heat source, and applying the correction to data supplied
15 by the thermal imaging device.

16 28. (Original) A method according to claim 27 further comprising positioning a
17 second heat source of known temperature and emissivity within the scene and generating the
18 calibrated temperature map of the scene based on the known temperatures of both heat sources.

19 29. (Original) A method of generating a quantitative thermal map of a scene, the
20 method comprising:

21 selecting at least part of an object in the scene, of known emissivity;

22 measuring the temperature of the at least part of an object, the at least part of an
23 object acting as a first heat source;

24 imaging the scene using a thermal imaging device; and

1 generating a calibrated temperature map of the scene, by determining a correction
2 based on the measured temperature of the heat source, and applying the correction to data
3 supplied by the thermal imaging device.

4 30. (Original) A method according to claim 29 further comprising selecting a
5 second at least part of an object in the scene of known emissivity, measuring its temperature such
6 that it acts as a second heat source, and generating the calibrated temperature map of the scene
7 based on the known temperatures of both heat sources.

8 31. (Currently amended) A method according to ~~any one of claims 27 to 30,~~
9 claim 29 which further comprises monitoring the temperature of the or each heat source and
10 communicating the temperature (s) to a processor.

11 32. (Currently amended) A method according to ~~any of claims 27 to 28 or 29 to~~
12 ~~30 and 31,~~ claim 29 further comprising identifying temperature variations in at least part of a
13 target object within the scene, the target object being a living subject.

14 33. (Original) A method according to claim 32, wherein the living subject is a
15 human.

16 34. (Original) A method according to claim 33, wherein the part of the target
17 object is a hand, foot or face.

18 35. (Currently amended) A method according to ~~any of claims 32 to 34,~~ claim 32
19 wherein the method further comprises issuing a signal if the measured temperature of the subject
20 is in excess of a threshold.

21 36. (Original) A method according to claim 35, wherein the method is repeated
22 for a number of different living subjects so as to distinguish those with an elevated body
23 temperature with respect to those exhibiting a normal body temperature.

1 37. (Currently amended) A method according to ~~any of claims 27 to 28 or 29 to~~
2 ~~30 and 31 to 36~~ claim 29 which further comprises communicating a set-point temperature to the
3 or each heat source, and thereby controlling the temperature of the or each heat source.

4 38. (Currently amended) A method according to ~~any of claims 27 to 28 or 29 to~~
5 ~~30 and 31 to 37~~ claim 29 which further comprises controlling a temperature range, of the thermal
6 imaging device, in accordance with the temperature of the or each heat source.

7 39. (New) A method according to claim 27 which further comprises monitoring
8 the temperature of the or each heat source and communicating the temperature (s) to a processor.

9 40. (New) A method according to claim 27 further comprising identifying
10 temperature variations in at least part of a target object within the scene, the target object being a
11 living subject.

12 41. (New) A method according to claim 40, wherein the living subject is a
13 human.

14 42. (New) A method according to claim 41, wherein the part of the target object
15 is a hand, foot or face.

16 43. (New) A method according to claim 40 wherein the method further
17 comprises issuing a signal if the measured temperature of the subject is in excess of a threshold.

18 44. (New) A method according to claim 43, wherein the method is repeated for a
19 number of different living subjects so as to distinguish those with an elevated body temperature
20 with respect to those exhibiting a normal body temperature.

21 45. (New) A method according to claim 27 which further comprises
22 communicating a set-point temperature to the or each heat source, and thereby controlling the
23 temperature of the or each heat source.

- 1 46. (New) A method according to claim 27 which further comprises controlling
- 2 a temperature range, of the thermal imaging device, in accordance with the temperature of the or
- 3 each heat source.